

WHAT IS CLAIMED IS:

1. A vector, comprising from upstream to downstream:
a first promoter;
at least one cloning site;
a rat Kv2.1 polyadenylation sequence; and
an origin of replication.
2. The vector of claim 1, wherein the first promoter comprises a ubiquitin promoter.
3. The vector of claim 1, wherein the first promoter comprises a human ubiquitin promoter.
4. The vector of claim 1, wherein the at least one cloning site includes at least one restriction site selected from HindIII site, BamHI site, Asp718I site, Kpn I site, Bst I site, EcoRI site, EcoRV site, PstI site, Eco32I site, XhoI site, Sfr274I site, XbaI site, FauNDI site, and PmeI site.
5. The vector of claim 1, wherein the at least one cloning site includes an insert encoding a peptide.
6. The vector of claim 5, wherein the peptide comprises an ion-channel peptide.
7. The vector of claim 6, wherein the ion-channel peptide is selected from hERG, hHNa, HKvLQT1, hminK, hKv1.5, and rKv4.3.

8. The vector of claim 1, wherein the origin of replication is selected from f1, oriV, pBR1, pMB1, pUC1, and RSF1010 origins.
9. The vector of claim 1, further comprising a first selectable marker.
10. The vector of claim 9, wherein the first selectable marker comprises a first antibiotic resistance cassette.
11. The vector of claim 10, wherein the first antibiotic resistance cassette confers resistance to at least one of neomycin, blasticidin, ampicillin, kanamycin, methotrexate, tetracycline, spectinomycin, erythromycin, chloramphenicol, phleomycin, Tn917, gentamycin, and bleomycin.
12. The vector of claim 10, wherein the first antibiotic resistance cassette comprises a neomycin resistance cassette.
13. The vector of claim 10, wherein the first antibiotic resistance cassette comprises a blasticidin resistance cassette.
14. The vector of claim 10, wherein the first antibiotic resistance cassette comprises a promoter, an origin, and an antibiotic resistance gene.
15. The vector of claim 12, wherein the neomycin resistance cassette comprises a promoter and a neomycin resistance gene.
16. The vector of claim 15, wherein the promoter of the neomycin resistance cassette comprises an SV40 promoter that includes an SV40 origin.
17. The vector of claim 14, wherein the first antibiotic resistance cassette further comprises a polyadenylation sequence.

18. The vector of claim 17, wherein the polyadenylation sequence of the first antibiotic resistance cassette comprises a TK polyadenylation sequence.
19. The vector of claim 18, wherein the TK polyadenylation sequence comprises a nucleotide sequence corresponding to a nucleotide sequence from pCR3 or pCR3.1.
20. The vector of claim 15, wherein the neomycin resistance cassette further comprises a polyadenylation sequence.
21. The vector of claim 20, wherein the polyadenylation sequence of the neomycin resistance cassette comprises a TK polyadenylation sequence.
22. The vector of claim 21, wherein the TK polyadenylation sequence comprises a nucleotide sequence corresponding to a nucleotide sequence from pCR3 or pCR3.1.
23. The vector of claim 9, wherein the first selectable marker comprises at least two promoters and at least two origins.
24. The vector of claim 10, wherein the first antibiotic resistance cassette comprises at least two promoters and at least two origins.
25. The vector of claim 1, further comprising a polyadenylation sequence.
26. The vector of claim 26, wherein the polyadenylation sequence comprises an SV40 polyadenylation sequence.
27. The vector of claim 9, further comprising a second selectable marker.

28. The vector of claim 10, further comprising a second antibiotic resistance cassette.
29. The vector of claim 28, wherein the second antibiotic resistance cassette comprises an origin and an antibiotic resistance gene.
30. The vector of claim 29, wherein the origin of the second antibiotic resistance cassette is selected from f1, oriV, pBR1, pMB1, pUC1, and RSF1010 origins.
31. The vector of claim 30, wherein the antibiotic resistance gene of the second antibiotic resistance cassette comprises an ampicillin resistance gene.
32. The vector of claim 1, wherein the vector comprises a plasmid.
33. The vector of claim 1, wherein the vector comprises a nucleotide sequence corresponding to SEQ ID NO. 1.
34. The vector of claim 1, wherein the vector comprises a nucleotide sequence corresponding to SEQ ID NO. 2.
35. A transfected cell comprising the vector of claim 1.
36. The transfected cell of claim 35, wherein the cell is a prokaryotic cell.
37. The transfected cell of claim 35, wherein the cell is a eukaryotic cell.
38. The transfected cell of claim 35, wherein the cell is a mammalian cell.
39. The transfected cell of claim 38, wherein the mammalian cell is an HEK cell.

- 40. The transfected cell of claim 39, wherein the HEK cell is an HEK 293 cell.
- 41. A transfected cell comprising the vector of claim 2.
- 42. A transfected cell comprising the vector of claim 4.
- 43. A transfected cell comprising the vector of claim 5.
- 44. A transfected cell comprising the vector of claim 6.
- 45. A transfected cell comprising the vector of claim 7.
- 46. A transfected cell comprising the vector of claim 8.
- 47. A transfected cell comprising the vector of claim 9.
- 48. A transfected cell comprising the vector of claim 12.
- 49. A transfected cell comprising the vector of claim 32.
- 50. A transfected cell comprising the vector of claim 33.
- 51. A transfected cell comprising the vector of claim 34.